

wherein x is an integer from 0 to about 5, y is an integer from 1 to about 49, z is an integer from 1 to about 49 and the sum of $x + y + z$ is equal to 3 to about 50; R^1 is an alkyl, an alicyclic or an alkylalicyclic radical having from about 4 to about 30 carbon atoms or an alkylaryl where the alkyl group is from about 4 to about 30 carbon atoms; R^2 and R^3 each is different and is an alkyl group of from 1 to 4 carbon atoms and each oxyalkylene radical can be any combination of repeating oxyalkylene units to form random or block copolymers; and R^4 is the same as R^2 and R^3 .

14. (Amended) The fuel composition of Claim 10 wherein the amount of the carrier present in the fuel composition is from about 10 to about 1000 PTB.

REMARKS

Favorable reconsideration and allowance of the claims in view of the foregoing amendments and the following remarks are respectfully requested.

Claims 1-37 are pending in this application. By this Amendment, Claims 12 and 14 have been amended. Applicants have attached Appendix A hereto containing a marked up copy of original Claims 12 and 14. Applicants respectfully submit that no new matter has been added to the subject application nor have any new issues been raised by this amendment. Moreover, it is submitted that the claims as now presented place the subject application in condition for immediate allowance.

^{Drop} Claims 12 and 14 have been amended in a manner believed to obviate the rejection under the second paragraph of 35 U.S.C. §112. Accordingly, withdrawal of the rejection is respectfully requested.

The Examiner has rejected Claims 1-37 under 35 U.S.C. §103(a) as being obvious over Colucci et al. U.S. Patent No. 5,634,951 ("Colucci") in view of Schlicht et al. U.S. Patent No. 4,729,769 ("Schlicht") and Cunningham et al. U.S. Patent No. 5,679,119 ("Cunningham").

Prior to addressing the prior art rejection, the Examiner's citation of U.S. Patent No. 5,679,119 is believed to be a typographical error since the named inventor to this patent is Freeman et al. Thus, it is believed that the Applicants' citation of U.S. Patent No. 5,679,116^{OK} to Cunningham in form PTO-1449 is the correct U.S. patent number.

Now turning to the rejection, nowhere does Colucci disclose or suggest a fuel composition obtained from "(a) a major amount of an internal combustion engine hydrocarbon fuel containing at least one alcohol, it being provided that methyl tertiary-butyl ether ("MTBE") is substantially absent from the fuel; and, (b) a friction modifying amount of a reaction product of at least one natural or synthetic oil and at least one alkanolamine" as presently recited in Claims 1 and 17.

Rather, Colucci discloses new highly effective Mannich condensation product fuel detergents/dispersants for use in spark ignition fuels in which the reactants of the Mannich condensation product are added in special proportions relative to one another. Nothing in Colucci would suggest much less motivate one skilled in the art to modify the Mannich

condensation product fuel detergent in the fuel composition disclosed therein to arrive at the claimed fuel composition obtained by adding a friction modifying amount of the specifically recited reaction product to a fuel containing at least one alcohol with MTBE being substantially absent from the fuel. In point of fact, not only is there no disclosure, suggestion or even a hint of the specifically recited reaction product in Colucci, there is also no disclosure or suggestion of employing in the fuel composition a fuel containing at least one alcohol with MTBE being substantially absent therefrom.

Instead, Colucci discloses in column 8, lines 54-65 that any and all base fuels are suitable for use in the operation of spark ignition internal combustion engines, e.g., unleaded motor and aviation gasolines, and reformulated gasolines which contain both hydrocarbons of the gasoline boiling range and fuel-soluble oxygenated blending components such as alcohols, ethers, and other suitable oxygen-containing organic compounds. Of the blending agents disclosed in Colucci are fuel-soluble alkanols such as methanol, ethanol, and their higher homologs, and fuel-soluble ethers such as methyl tertiary butyl ether, ethyl tertiary butyl ether, methyl tertiary amyl ether, and analogous compounds, and mixtures of such materials. Thus, as far as Colucci is concerned, a fuel containing an alcohol and no MTBE is equivalent to a fuel containing MTBE and no alcohol. Accordingly, nothing in Colucci would lead one skilled in the art to modify the Mannich condensation product fuel detergent containing fuel composition disclosed therein to arrive at the claimed fuel composition.

There is likewise no disclosure or suggestion in Colucci of a method of reducing friction in an internal combustion engine by adding to the engine a fuel composition comprising (a) a major amount of an internal combustion engine hydrocarbon fuel containing at least one alcohol, it being provided that MTBE is substantially absent from the fuel; and, (b) a friction modifying amount of a reaction product of at least one natural or synthetic oil and at least one alkanolamine as generally recited in Claim 30. Rather, Colucci discloses a new effective fuel detergent for minimizing or reducing intake valve deposits and/or intake valve sticking in an engine. It is not seen where Colucci provides any disclosure or suggestion of a method for reducing friction in an engine. The difference between reducing intake valve deposits and/or intake valve sticking and reducing friction in an engine is well recognized to one skilled in the art. If it is the Examiner's position that Colucci discloses or suggests that a method for reducing friction in an engine, the Examiner is respectfully requested to identify with particularity (by column and line) where *in Colucci* such teaching or suggestion can be found. As such, in lacking any disclosure or suggestion of a method of reducing friction in an internal combustion engine, Claims 30-37 are believed to be patentable over Colucci.

Schlicht fails to cure the deficiencies of Colucci. Schlicht likewise fails to teach or suggest a fuel composition obtained from "(a) a major amount of an internal combustion engine hydrocarbon fuel containing at least one alcohol, it being provided that MTBE is substantially absent from the fuel; and, (b) a friction modifying amount of a reaction product of at least one natural or synthetic oil and at least one alkanolamine" as presently recited in Claims

1 and 17. Rather, Schlicht discloses a detergent additive formed from a fatty acid ester or natural oil and diethanolamine for use in gasoline. As with Colucci, there is no disclosure, suggestion or even a hint in Schlicht of adding a friction modifying amount of the specifically recited reaction product to an internal combustion engine hydrocarbon fuel containing at least one alcohol wherein MTBE is substantially absent therefrom. Accordingly, nothing in Schlicht would lead one skilled in the art to modify the Mannich condensation detergent and base fuel which may or may not contain an alcohol and/or MTBE disclosed in Colucci by adding thereto the reaction product of Schlicht with any expectation of success.

There is likewise no disclosure or suggestion in Schlicht of a method of reducing friction in an internal combustion engine by adding to the engine a fuel composition containing the specifically recited internal combustion engine hydrocarbon fuel and specifically recited reaction product of Claim 30. Rather, Schlicht merely discloses a fuel detergent for minimizing or reducing intake valve deposits and/or intake valve sticking in an engine. As with Colucci, it is not seen where Schlicht provides any disclosure or suggestion of a method for reducing friction in an engine. As such, in lacking any disclosure or suggestion of a method of reducing friction in an internal combustion engine, Claims 30-37 are believed to be patentable over Schlicht.

Cunningham fails to cure and is not cited as curing the deficiencies of Colucci and Schlicht. Rather, Cunningham is cited for its disclosure that Mannich detergents, succinimides and aliphatic polyamine detergents can be added to fuel compositions. Since Cunningham likewise fails to teach or suggest a fuel composition obtained from (a) a major

amount of an internal combustion engine hydrocarbon fuel containing at least one alcohol, it being provided that MTBE is substantially absent from the fuel; and, (b) a friction modifying amount of a reaction product of at least one natural or synthetic oil and at least one alkanolamine, Claims 1 and 17 are believed to be patentable over Cunningham.

There is likewise no disclosure or suggestion in Cunningham of a method of reducing friction in an internal combustion engine by adding to the engine a fuel composition containing the specifically recited internal combustion engine hydrocarbon fuel and specifically recited reaction product of Claim 30. Rather, Cunningham merely discloses that a fuel-soluble cyclopentadienyl complex of a transition metal improves the effectiveness of a fuel detergent for minimizing or reducing intake valve deposits and/or intake valve sticking in an engine. As with Colucci and Schlicht, it is not seen where Cunningham provides any disclosure or suggestion of a method for reducing friction in an engine. Thus, in lacking any disclosure or suggestion of a method of reducing friction in an internal combustion engine, Claims 30-37 are believed to be patentable over Cunningham.

As Colucci, Schlicht and Cunningham, either alone or in combination, provide no disclosure, suggestion or appreciation of adding the specifically recited reaction product to a fuel containing at least one alcohol wherein MTBE is substantially absent therefrom or to a method of reducing friction employing the fuel composition, one skilled in the art would not look to the disclosures of Schlicht or Cunningham to modify the fuel composition of Colucci to arrive at the presently claimed fuel composition with any expectation of success. Accordingly, no

prima facie case of obviousness is presented in the Office Action and the rejection of Claims 1-37 as being obvious over Colucci, Schlicht and Cunningham should be withdrawn no matter how these references are considered.

Despite the fact that no *prima facie* case of obviousness is presented in the Office Action, Examples 1-3 and Comparative Examples A-C set forth in the specification amply demonstrate the superior and unexpected results achieved from a fuel composition obtained from (a) a fuel containing an alcohol and substantially no MTBE and (b) a reaction product derived from a natural or synthetic oil and an alkanolamine. When using alcohol-additized fuels with substantially no MTBE therein in spark ignition engines, the fuel economy is significantly reduced. Applicants, however, have surprisingly discovered that by adding the specifically recited reaction product to a fuel containing at least one alcohol and substantially no MTBE, greater fuel economy and efficiency in the operation of a hydrocarbon fuel powered internal combustion engine is achieved while also reducing friction in the engine. This is highly advantageous in that not only does the fuel containing only an alcohol possess less toxicity than a fuel containing MTBE resulting in less exhaust emissions from the spark-ignition powered engines but by adding the reaction product to the fuel greater efficiency in the operation of internal combustion engines can be achieved. These results are in no way taught or suggested in the cited primary reference (i.e., Colucci) or the secondary references (i.e., Schlicht and Cunningham). In fact, the cited references do not even recognize that there is any problem with the use of a fuel containing an alcohol alone and substantially no MTBE. It is therefore

impossible for these references to teach or suggest the superior and unexpected results achieved by the use of the specifically recited reaction product in a fuel containing an alcohol and substantially no MTBE.

To show the superior and unexpected results achieved by the use of the claimed fuel composition, Examples 1-3 and Comparative Examples A-C were carried out. For the Examiner's convenience the examples are presented in Table 1 below:

Table 1

<u>Sample</u>	<u>Ethanol Amount (vol%)</u>	<u>Co-Additive</u>	<u>Co-additive Amount (PTB)</u>	<u>HFRR (mm)</u>
Comp. Blend A	--	Friction Modifier	52	455
Comp. Blend B	10	None	--	712
Blend 1	10	Friction Modifier	52	642
Blend 2	10	Friction Modifier	100	512
Comp. Blend C	13	None	--	846
Blend 3	13	Friction Modifier	52	468

As these data illustrate, by employing a reaction product of a natural or synthetic oil with an alkanolamine together with gasoline containing 10 percent by volume ethanol and no MTBE in Blend 1 (which is within the scope of this invention) as compared to gasoline containing 10 percent by volume ethanol with no reaction product in Comparative Blend B (which is outside the scope of this invention) significantly greater fuel economy was achieved, i.e., an HFRR of 642 for Blend 1 as compared to 712 for Comparative Blend B.

In addition, by employing the reaction product together with gasoline containing 13 percent by volume ethanol in Blend 3 (which is within the scope of this invention) as compared to gasoline containing 13 percent by volume ethanol with no friction modifier in Comparative Blend C (which is outside the scope of this invention) significantly greater fuel economy was still achieved, i.e., an HFRR of 468 for Blend 3 compared to 846 for Comparative Blend C. Nothing in Colucci, Schlicht or Cunningham would lead one skilled in the art to expect these results.

For the foregoing reasons, amended Claims 1-37 are believed to be nonobvious, and therefore patentable, over Colucci, Schlicht and Cunningham, no matter how these references are considered or combined.

The Examiner has provisionally rejected Claims 1-37 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-40 of co-pending Application No. 09/708,237. However, Application No. 09/708,237, which can have no effective filing date earlier than the November 8, 2000 filing date of the application, is not prior art to the subject application which is entitled to its September 20, 2000 filing date. Accordingly, withdrawal of this rejection is respectfully requested.

For the foregoing reasons, amended Claims 1-37 as presented herein are believed to be in condition for immediate allowance. Such early and favorable action is earnestly solicited.

Respectfully submitted,

A handwritten signature in cursive script, reading "Michael E. Carmen".

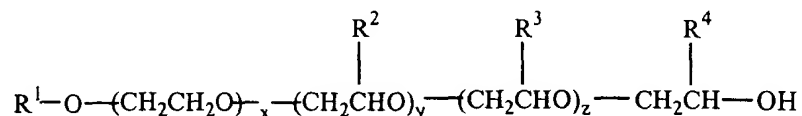
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APPENDIX A

12. (Amended) The fuel composition of Claim 11 wherein the polyether alcohol possesses the general formula



wherein x is an integer from 0 to about 5, y is an integer from 1 to about 49 [preferably from about 5 to about 40 and more preferably from about 5 to about 10], z is an integer from 1 to about 49[, preferably from about 5 to about 40 and more preferably from about 5 to about 10] and the sum of x + y + z is equal to 3 to about 50; R¹ is an alkyl, an alicyclic or an alkylalicyclic radical having from about 4 to about 30 carbon atoms or an alkylaryl where the alkyl group is from about 4 to about 30 carbon atoms; R² and R³ each is different and is an alkyl group of from 1 to 4 carbon atoms and each oxyalkylene radical can be any combination of repeating oxyalkylene units to form random or block copolymers; and R⁴ is the same as R² and R³.



14. (Amended) The fuel composition of Claim 10 wherein the amount of the carrier present in the fuel [additive] composition is from about 10 to about 1000 PTB.